

R E M A R K S

The amendment previously made to the specification at p. 56 has been canceled, claim 1 has been amended to delete its recital of saturation magnetization, and claims 20 and 38 have been canceled, all to expedite prosecution but without prejudice to the scope of protection to which applicants are believed to be entitled or to applicants' right to present claims to the canceled and deleted subject matter in a continuing application. Since this Amendment does not increase either the total number of claims or the number of independent claims, no additional fee is necessary.

Claims 1 - 6, 8 - 19, 21, 22, 30, 32 - 37, 39 and 40 are in the application. Claims 8, 21, 30 and 39 have been allowed; all the other claims have been finally rejected.

New Matter Objection and Rejection under §112, First Paragraph

The cancellation of the previous amendment to p. 56 of the specification moots the new matter objection set forth in numbered section 4 at pp. 2-6 of the final Office Action. The amendment of claim 1, on which claims 2 - 6 and 9 are dependent, and the cancellation of claims 20 and 38 moots the rejection under 35 U.S.C. §112, first paragraph, set forth in numbered section 6 at pp. 6-9 of the final Office Action.

Essentially for the reasons already set forth in the Amendment filed April 7, 2005, and for the additional reason (previously noted) that a review of pertinent art including but not limited to references of record indicates that saturation

magnetization of toners is conventionally determined at a magnetic field of 10 kOe, applicants do not agree with the new matter objection or the \$112 rejection of claims 1 - 6, 9, 20 and 38. Nevertheless, to expedite prosecution of the present application, as stated, and to reduce and simplify the issues for appeal, applicants are presenting herein the above-noted changes in the specification and claims, without prejudice.

It is submitted that these amendments do not raise new issues after final rejection, and may therefore properly be entered and considered at this time. Claims 1 - 6 and 9, as originally presented and examined, did not contain the limitation herein deleted from claim 1.

Rejections under §103(a)

Claim 1 is directed to a two-component developer comprising a magnetic carrier and a toner, wherein the toner comprises a binder resin and a magnetic material blackened by coating the surface of a magnetic powder with a coloring agent, the magnetic material being in an amount of 10 to 40 wt.% of the toner. This claim has been finally rejected under 35 U.S.C. §103(a) as unpatentable over Asanae et al. '699 in view of EP '507 for reasons discussed in an Office Action dated 10/08/2004.

As understood from the latter Office Action, it is the Examiner's position that Asanae et al. '699 discloses a two-component developer, comprising a magnetic carrier and a chargeable magnetic toner (the toner preferably containing 20 to 60 wt.% of magnetic powder), which is within the compositional limitations recited in applicant's claims except that

"Asanae [et al.] '699 does not disclose the use of magnetic material coated with a coloring agent. However, Asanae [et al.] '699 does not limit the type of magnetic particles used in its magnetic toner."

The Examiner further states that "EP '507 discloses black magnetic composite particles . . . coated with carbon black" which are within the compositional limitations of applicants' claims; that a particle size disclosed in EP '507 is "within the preferred range" disclosed by Asanae et al. '699; that EP '507 "exemplifies a magnetic toner comprising" 40 wt.% of black magnetic composite particles, which is within applicants' claimed range and within the range taught by Asanae et al. '699; and that the EP '507 "toners comprising its carbon black surface coated magnetic particles have excellent fluidity and blackness" which "provide high quality images and can be used in high speed copiers."

Acknowledging that "EP '507 does not disclose that its magnetic toner can be used in a two-component developer comprising a magnetic carrier" as recited in applicants' claims and disclosed by Asanae et al. '699, the Examiner asserts that because "EP '507's magnetic toner meets the limitations of the magnetic toner required by Asanae [et al.] '699 for its two-component developers" and is taught as having "excellent blackness, fluidity, and dispersibility in a binder resin," the use of EP '507's magnetic toner in the two-component developer of Asanae et al. '699 would have been obvious to a person of ordinary skill in the art

"because that person would have had a reasonable expectation of successfully obtaining a two-component developer . . . having the properties disclosed by

Asanae [et al.] '699 and providing high quality black toned images as disclosed by EP '507."

That is to say, in the words of the final Office Action, "the two component developer recited in instant claims is prima facie obvious over the combined teachings of the cited prior art."

In response, applicants repeat and incorporate herein by this reference their remarks, set forth in responses to previous Office Actions, explaining why it would not have been obvious to use the magnetic toners of EP '507 (there disclosed *only* for use as one-component developers) as the toners of the Asanae et al. '699 two-component developers.

Moreover, even assuming *arguendo* (which applicants do not concede) that use of the EP '507 toners in the Asanae et al. '699 developer would have been *prima facie* obvious, nevertheless applicants submit that their invention, as defined in present claim 1, achieves important unexpected new results that should be given patentable weight, overcoming the asserted *prima facie* obviousness of the combination of references.

At paragraphs [0010] and [0011] of U.S. Patent Application Publication No. 2003/0036010 A1, discussing the background of the invention, applicants' specification explains that

"[0010] Conventional toners for use in two-component developers are mostly of a non-magnetic type, in which carbon black is used as a coloring agent. Such conventional toners have a shortcoming that the fogging of images is apt to be caused when the carrier serving as a charge application member deteriorates while in use, and applied to the toner particles electric charges with a

polarity opposite to the polarity of electric charges that should be applied to the toner particles, or when the toner particles are not sufficiently charged by the carrier.

"[0011] As a countermeasure against such a problem, there has been devised a method for preventing the occurrence of the fogging of images by containing a magnetic material in the toner and applying a magnetic bias thereto. However, when the amount of the magnetic material is excessive in the toner, images with a sufficient density for use in practice cannot be obtained so that an appropriate range of the amount thereof must be found, while when the amount of the magnetic material is small, carbon black must be used in combination with the magnetic material since the coloring is insufficient when only the magnetic material is used, However, in order to improve the coloring degree, a large amount of carbon black is used, there occurs a problem that the tolerance for the image fogging is reduced."

At paragraphs [0053] and [0054], the specification explains how the claimed invention overcomes these problems:

"[0053] In the . . . toner of the present invention, by containing in the toner the magnetic material of which blackness is increased by the surface of the magnetic power being coated with the coloring agent, the use of carbon black [that] constitutes one of the causes of bringing about the fogging of the background of images can

be eliminated or reduced, or the bias response of a toner with a small charge quantity due to magnetic bias effect, or due to opposite polarity charging can be reduced, so that the tolerance for the fogging of the background can be improved.

"[0054] In the above toner, when the amount of the magnetic material is less than 10 wt. %, the improvement effect of the fogging of the background due to the magnetic bias effect is small, while when the amount of the magnetic material is more than 40 wt. %, the magnetic bias effect becomes so excessive that the development performance is extremely reduced and a problem may occur with respect to image density."

Further, at paragraphs [0069] and [0074], the specification explains the special advantages of the developer of the invention (e.g. as claimed in claim 1) for the particular type of image-forming method and apparatus to which present claims 10 - 19 and 22 are directed, viz.:

"[0069] In particular, in the image formation method of the present invention which does not require means for detecting the concentration of the toner, higher improvement of the tolerance for the unevenness of image density and the fogging or the background of image is required. .

. . .

"[0074] In the above image formation apparatus, the uniformity of the image density is improved by facilitating the movement of the toner in the traverse direction.

The greater the binding force applied to the toner which is held to a development sleeve by magnetic force, the more difficult for the toner to move, and the more conspicuously the non-uniformity of the image density appears. Therefore, the less the binding force to the toner, the better. In order to reduce the fogging of the background of image due to the magnetic bias and the non-uniformity of the density at the same time, it is necessary to control the magnetic force of the toner itself within a specific range. The magnetic force of the toner can be controlled by controlling the amount of a magnetic material to be contained in the toner. However, when the amount of the magnetic material is reduced below a level corresponding to the level of the conventional magnetic toner in general use, there arises a problem that the coloring force is reduced. When the coloring force improved by containing carbon black in the toner, the tolerance for the fogging of the background of image is lowered. In the present invention, it has been discovered that the desired coloring degree is obtained and the non-uniformity of image density and the fogging of the background of image can be controlled appropriately at the same time by containing in the toner the magnetic material whose surface is coated with a coloring agent and blackened with the coloring agent, even if the amount of the blackened magnetic material is small."

The Examples and Comparative Examples set forth in applicants' specification demonstrate both the beneficial results achieved with the claimed invention, and the criticality of the features of the developer set forth in claim 1 for the attainment of those results.

For instance, in the two-component developers of applicants' EXAMPLE 1 (paragraphs [0164]-[0167] and EXAMPLE 7 (paragraphs [0184]-[0187]), the toner component comprised a binder and carbon-coated or "blackened" magnetic particles, while in COMPARATIVE EXAMPLE 1 (paragraphs [0172]-[0173]) "The procedure for preparation of the toner No. 1 in Example 1 was repeated except that the carbon-coated magnetic material No. 1 . . . was replaced by a magnetic material not treated with carbon black," and in COMPARATIVE EXAMPLE 4 (paragraphs [0190]-[0191]) "The procedure for preparation of the toner No. 7 in Example 7 was repeated except that the blackened magnetic material No. 1 . . . was replaced by a magnetic material not treated with carbon black."

When the two-component developers of EXAMPLES 1 and 7 and COMPARATIVE EXAMPLES 1 and 4 were used to form images (paragraphs [0207]-[0262] and TABLE 1), the developers of EXAMPLES 1 and 7 of the invention using carbon-black-coated magnetic particles in the toner showed excellent freedom from fogging, excellent evenness in image density and excellent uniformity in solid image, while the developers of COMPARATIVE EXAMPLES 1 and 4 showed only good-to-excellent or fair-to-good freedom from fogging, only good or fair evenness in image density, and only fair or poor-to-fair uniformity in solid image - a significant lowering of image quality in all of three important categories. Since the only difference between the invention EXAMPLES 1 and 7 on the one hand, and the COMPARATIVE EXAMPLES 1 and 4 on the other, was the presence or absence of a coating of coloring agent (carbon black) on the magnetic particles of the toner component of the developer, it is clear that the presence of the coating was critical for the attainment of the superior results of the invention, i.e., overcoming the difficulties heretofore encountered with two-component developers and described in the above-quoted specification paragraphs [0010] and [0011].

Nothing in Asanae et al. '699 would remotely suggest that such problems, including problems heretofore encountered with two-component developers employing magnetic toners, could be overcome by providing a coating of coloring agent on the magnetic particles of a magnetic toner component of the developers. EP '507, for its part, is exclusively concerned with overcoming or ameliorating problems specifically presented by one component magnetic toners, and consequently would not suggest that a toner containing magnetic particles coated with an organosilane compound having carbon black particles adhered thereto, if used as the toner component of a two-component developer, could overcome the problems associated specifically with two-component developers.

It is therefore submitted that the advantageously superior properties achieved by applicants' combination, with a magnetic carrier in a two-component developer, of a toner comprising a binder resin and magnetic material blackened by coating with a coloring agent, constitute unexpected beneficial results imparting patentability to that novel combination as defined in claim 1.

Furthermore, the importance of the "10 wt.% to 40 wt.%" limitation set forth in claim 1 is demonstrated, in applicants' specification, by a comparison of the results obtained using the developer of the aforementioned EXAMPLE 1 of the invention, on the one hand, with the results obtained using the developers of COMPARATIVE EXAMPLE 2 (paragraphs [0174]-[0175]) and COMPARATIVE EXAMPLE 3 (paragraphs [0176]-[0177]) on the other. In all three cases, the same carbon-coated magnetic particles were employed in the toner component of the developer, but in EXAMPLE 1 these particles constituted 21.9 wt.% of the toner while in COMPARATIVE EXAMPLES 2 and 3 they constituted 5 wt.% and 50 wt. % of the toner, respectively. Again, COMPARATIVE EXAMPLES 2 and 3 were distinctly inferior to EXAMPLE 1 in each of the categories of fogging, evenness in image density and uniformity in solid image.

The Examiner has noted that Asanae et al. '699 sets forth a preferred range of 20 - 60 wt.% of magnetic powder in a magnetic toner, and that EP '507 shows examples at 40 wt.% although the broad range of magnetic particle content of the EP '507 toner is disclosed as extending very substantially above that value. These are overlapping ranges, with respect to the range recited in present claim 1, and insofar as they may be deemed to render the claimed range *prima facie* obvious, such may be overcome by a showing that they are critical for the attainment of unexpected beneficial new results. See *In re Peterson*, 65 U.S.P.Q.2d 1379 (Fed. Cir. 2003); M.P.E.P. §2144.05.

It is therefore further submitted that the recited 10 - 40 wt.% range in combination with the other features set forth in claim 1 presents an additional patentable distinction over Asanae et al. '699 and EP '507, considered together.

Claims 2 - 6 and 9, being dependent on claim 1, are submitted to be allowable therewith. Asanae et al. '289, combined with the other references in the rejection of claim 9, adds nothing to the other two references with respect to the novel and distinguishing combination of features recited in claim 1 and discussed above.

Claim 10, directed to a method for forming an image using a two-component developer comprising a magnetic carrier and a toner, wherein the toner comprises a binder resin and a magnetic material blackened by coating the surface of a magnetic powder with a coloring agent, is rejected on Asanae et al. '699 in view of EP '507 and Oka et al. Oka et al., whatever it may be said to show respecting steps of a method employing a two component developer, does not supply what is lacking in the first two references respecting the defined novel two-component developer. Claim 13, directed to an image-forming apparatus including that two-component developer as a positive element thereof, is similarly rejected on Asanae et al. '699 and EP '507 in view of Oka et al.,

and is submitted to distinguish patentably in like manner thereover. Claims 11 and 12, dependent on claim 10, and 14 - 19 and 22, dependent on claim 13, are believed to be allowable with the claims on which they respectively depend. The above comment regarding Asanae et al. '289 applies to the rejection of claim 22.

All the remaining rejected claims (32 - 37 and 40) include all the limitations of claim 1 and are submitted to distinguish patentably over Asanae et al. '699 and EP '507, with or without Asanae '289, in the same manner as claim 1, discussed above.

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For the foregoing reasons, it is believed that this application is now in condition for allowance. Favorable action thereon is accordingly courteously requested.

Respectfully,

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I hereby certify that this paper is being deposited this date with the U.S. Postal Service as first class mail addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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